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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/092,203	03/04/2002	Chi-I Lang	AMAT/6218/DD/LOW K/JW	8611
32588	7590	05/20/2004	EXAMINER	
APPLIED MATERIALS, INC. 2881 SCOTT BLVD. M/S 2061 SANTA CLARA, CA 95050			GURLEY, LYNNE ANN	
			ART UNIT	PAPER NUMBER
			2812	

DATE MAILED: 05/20/2004

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/092,203

Applicant(s)

LANG ET AL.

Examiner

Lynne A. Gurley

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 20 February 2004.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-19 and 39 is/are pending in the application.
- 4a) Of the above claim(s) 39 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-19 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 March 2002 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.


LYNNE A. GURLEY

PRIMARY PATENT EXAMINER

TC 2800, AU 2812

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 6/28/02; 2/10, 20/03.

- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-19 in Paper No. 2/20/04 is acknowledged. The traversal is on the ground(s) that the process recited in claim 1 corresponds to the process recited in the product-by-process claim 39. Therefore, the Examiner has not shown that the product of claim 39 can be made by a process that is materially different than the process of claim 1. This is not found persuasive because although it is noted that claim 39 is a product-by-process claim, product-by-process claims are directed to the product no matter how actually made. *In re Taylor*, 149 USPQ 615, 617 (CCPA 1966). Consequently, it is the patentability of the final product, and not the patentability of the process, that must be determined in a product-by-process claim. *In re Thorpe*, 227 USPQ 964, 966 (CAFC 1985), *Ex parte Edwards* 231 USPQ 981, 983 (BdPatApp&Int 1986).

The requirement is still deemed proper and is therefore made FINAL.

2. Claim 39 has been withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected invention, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in Paper No. 2/20/04.

Specification

3. The specification has not been checked to the extent necessary to determine the presence of all possible minor errors. Applicant's cooperation is requested in correcting any errors of which applicant may become aware in the specification.

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4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

5. Claims 1-4 and 6-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Todd (US 2002/0016084, dated 2/7/02, filed 4/26/01).

6. Todd shows the method as claimed in a method of forming a nitrogen-doped SiC layer. Todd teaches that in general oxygen-doped and nitrogen-doped SiC layers are termed as silicon nitride layers [0019]. The nitrogen source may contain phenyl groups [0014], [0030]. Carrier gases such as He, Ar, Ne may be incorporated [0031]. Organosilicon containing precursors may be used [0029]. RF is used [0036]. Oxygen sources and alternate/supplemental silicon and carbon sources are given [0044]. Temperatures, pressures, Rf powers, gas flow rates are all given [0034] to [0036] and Tables 1-3 as well as Examples [0057] to [0062].

7. Claims 1-4 and 6-17 are rejected under 35 U.S.C. 102(e) as being anticipated by Todd (US 6,630,413, dated 10/7/03, filed 4/26/01).

8. Todd shows the method as claimed and as described in columns 1-14, in a method of forming a nitrogen-doped SiC layer. Todd teaches that in general oxygen-doped and nitrogen-doped SiC layers are termed as silicon nitride layers. The nitrogen source may contain phenyl groups. Carrier gases such as He, Ar, Ne may be incorporated. Organosilicon containing precursors may be used. RF is used. Oxygen sources and alternate/supplemental silicon and

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carbon sources are given. Temperatures, pressures, Rf powers, gas flow rates are all given. See the rejection under Todd (US 2002/0016084) above, which is the PG Publication of Todd 6,630,413.

Claim Rejections - 35 USC § 103

9. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

10. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148 USPQ 459 (1966), that are applied for establishing a background for determining obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

11. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

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12. Claims 5 and 18-19 are rejected under 35 U.S.C. 103(a) as being unpatentable over Todd (US 2002/0016084, dated 2/7/02, files 4/26/01) or Todd (US 6,630,413, dated 10/7/03, filed 4/26/01).

Both Todd US 2002/0016084 and Todd US 6,630,413 show the method substantially as claimed.

Both Todd US 2002/0016084 and Todd US 6,630,413 lack anticipation only in not specifically teaching that the NR1R2R3 is trimethylamine and that the nitrogen-doped SiC layer is an ARC at wavelengths less than about 250 nm.

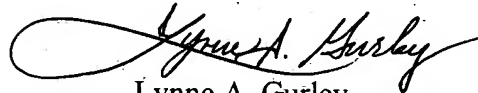
It would have been obvious to one of ordinary skill in the art to have had the NR1R2R3 be trimethylamine and to have the nitrogen-doped SiC layer be an ARC at wavelengths less than about 250 nm, with the motivation that both Todd references enable the nitrogen containing element to contain the phenyl groups and alkyl groups may be present as well in the gas mixture, therefore, the trimethylamine would be a substitution for the nitrogen providing gases disclosed to one of ordinary skill in the art. Additionally, the nitrogen-doped SiC being an ARC at wavelengths less than about 250 nm is possible since SiC is a known ARC, as is silicon nitride. Todd states that the SiC layer in the method may be used as an etch stop or a passivation layer. These are also well known to function as ARC layers. Optimizing the amounts of the constituents of the SiC layer could produce such an ARC layer.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Lynne A. Gurley whose telephone number is 571-272-1670. The examiner can normally be reached on M-F 7:30-4:00.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, John Niebling can be reached on 571-272-1679. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Lynne A. Gurley
Primary Patent Examiner
TC 2800, Au 2812

LAG
May 14, 2004